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JRW

Docket No.: 20780 US (C038435/0124164)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )

Mads GRUENBERG et al. ) Examiner: Pablo S. Whaley

Serial No.: 10/016,616 ) Art Unit: 1631

Filed: October 30, 2001 )

For: **OPTIMIZATION OF FERMENTATION  
PROCESSES**

New York, New York  
January 6, 2006

**RESPONSE TO RESTRICTION REQUIREMENT INCLUDING  
PETITION FOR EXTENSION OF TIME**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This is in response to the Office Action mailed September 22, 2005, which set a one-month shortened statutory period for response. A three-month extension of time to respond to the Office Action is hereby requested. Accordingly, this response is filed timely upon mailing, with an executed certificate of mailing, on or before January 23, 2006, because January 22, 2006 falls on a Sunday. 37 CFR §§ 1.7, 1.8, and 1.136. Enclosed is a check in the amount of \$1020.00 to cover the fee for the extension of time. 37 CFR § 1.17. Please charge any required extension-of-time fees not otherwise paid by check to Deposit Account No. 02-4467. A duplicate copy of this sheet is enclosed.

On page 2 of the Office Action, the Examiner issued a four-way restriction requirement pursuant to 35 USC § 121. The restriction divided the claims into the following allegedly distinct inventions: Group I (claims 1-8) “drawn to a method of optimizing a bioprocess involving a complex nutrient mixture, periodically stopping a nutrient supply to decrease microorganism metabolic activity, calculating new feed concentrations, and using an optimization routine to adjust the amount of nutrients supplied to the microorganism;” Group II (claim 9) “drawn [to] a device for optimized performance of microbiological processes involving complex nutrient mixtures;” Group III (claims 10-15) “drawn to a method for optimizing production of a fermentation product;” and Group IV (claim 16) “drawn to a fermentation system wherein cultivation of a microorganism is optimized for production of a fermentation product.” (Paper No. 09152005 at 2).

In accordance with restriction practice, the subject matter of claims 1-8 (Group I) is hereby elected for prosecution with traverse.

On pages 4-5 of the Office Action, the Examiner requested two elections of species. The Examiner stated that the “[t]his application contains claims directed to patentably distinct and divergent species of the claimed inventions. If Group I, III III, or IV is elected, the applicant is further required to make the following specie elections for purposes of examination. The applicant[s] must elect two of the following species (i.e. elect a single Optimization Routine and single Parameter for determining metabolic activity).” (See Office Action at 4).

### **Optimization Routine Election**

**Specie I-A:** Method as set forth in Group I or II, wherein said optimization routine comprises a controller, a multi-component controller, and a means for controlling feed concentration (as disclosed in instant Claim 2).

**Specie I-B:** Method as set forth in Group I or II, wherein said optimization routine comprises generating a flow chart, generating response times, and using the response times to form the input variable  $Q_{sens}$  (as disclosed in instant Claim 4).

**Specie I-C:** Method as set forth in Group I or II, wherein said optimization routine is model-based and not disclosed in instant Claim 2 or Claim 4.

### **Parameter Election**

**Specie I-D:** Method as set forth in Group I or II, wherein the metabolic activity is determined by one parameter selected from the following group: oxygen transfer rate, carbon dioxide transfer rate, pH, concentration of dissolved oxygen in the bioreactor, temperature of the bioreactor. *Id.* at 4-5.

In accordance with restriction practice, the following species are hereby elected for prosecution with traverse:

**Optimization Routine Election : Specie I-B**

**Parameter Election : carbon dioxide transfer rate**

If the Examiner has any questions regarding this paper, please contact the undersigned attorney.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450, on January 6, 2006.



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Respectfully submitted,

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